

HACKH'S CHEMICAL DICTIONARY

[American and British Usage]

*Containing the Words Generally Used in Chemistry,
and Many of the Terms Used in the Related
Sciences of Physics, Astrophysics, Mineralogy,
Pharmacy, Agriculture, Biology,
Medicine, Engineering, etc.*

Based on Recent Chemical Literature

FOURTH EDITION

Completely Revised and Edited by

JULIUS GRANT

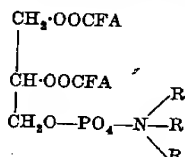
M.S.C., PH.D., F.R.I.C. CHEMICAL CONSULTANT

McGRAW-HILL BOOK COMPANY

New York San Francisco Toronto London Sydney

- Dihydroxypropanal*. Colorless solid, m.132, soluble in water.
- glycerals. Compounds derived from glycerol and aldehydes, similar to the acetals.
- glyceric acid. $\text{CH}_2\text{OH}\cdot\text{CHOH}\cdot\text{COOH} = 106.1$. 2,3-Dihydroxypropanoic acid*. Occurs as *d*- and *l*-acids. Colorless syrup, soluble in water, formed during alcoholic fermentation. α -phenyl- Atro-glyceric acid.
- glyceric aldehyde. Glyceraldehyde.
- glyceride. An ether or ester derived from glycerol. The fats and oils are mainly triglycerides of fatty acids, e.g., tripalmitin.
- glycerin(e). Glycerol. *g. agar-agar*. A culture medium: 60 ml glycerol, 15 gm agar, 10 gm peptone, 5 gm sodium chloride, 1,000 ml bouillon stock, neutralized with caustic soda. *g. trinitrate*. Nitroglycerin.
- glycerinate. A salt of glyceric acid, indicated by the radical $\text{C}_3\text{H}_5\text{O}_4-$.
- glycerino. Glycero.
- glycerinum. Glycerol.
- glycero. (1) Glyceryl. (2) The radical $-\text{CHO}_2-\text{CHO}\cdot\text{CH}_2\text{O}-$, from glycerol.
- glycerogen. A German wartime substitute for glycerin (glycerol 40, propylene glycol 40, other higher alcohols 20%). Made by hydrogenating inverted sucrose.
- glycerol. $(\text{CH}_2\text{OH})_2\text{CHOH} = 92.08$. Glycerin(e), glycerinum, 1,2,3-propanetriol*, propenyl hydrate. Colorless, sweet syrup, d.1.260, m.17 (solidifies at lower temperature), b.290, soluble in water, insoluble in organic solvents. Obtained by the saponification of fats in the soap industry; used as a mordant, plasticizer, solvent, and reagent, in the manufacture of printer's ink and rolls, and explosives, and for application to the skin.
- absolute- *G*. free from water. amyl- $\text{C}_5\text{H}_5(\text{OH})_3$. Quintenyl glycerin. diethyl- Diethylglycerol. dithio- See *BAL*. mesitylene- Mesicerin.
- g. diacetate*. Diacetin. *g. dilaurate*. Dilaurin.
- g. dinitrate*. Dinitroglycerin. *g. diphenyl ether*. $\text{C}_{12}\text{H}_{14}\text{O}_3 = 244.2$. 1,3-Diphenoxy-2-propanol*. White crystals, m.80; a plasticizer for nitrocellulose.
- g. distearate*. Distearin. *g. ether*. $\text{C}_6\text{H}_{10}\text{O}_3 = 130.2$. Glycerol ether. Colorless liquid, d.0.091, b.169. Cf. *allylin*. *g. monochlorhydrin*. $\text{C}_3\text{H}_7\text{O}_2\text{Cl} = 110.51$. α -3-Chloro-1,2-propanediol*. Colorless liquid, d.1.322, b.58mm81, miscible with water; used in the synthesis of glycidol. *beta*-2-Chloro-1,3-dihydroxypropane; b.14mm124. *g. monophenyl ether*. $\text{C}_9\text{H}_{12}\text{O}_3 = 168.1$. 1-Phenoxo-2,3-propanediol*, autodyne. White solid m.53; a plasticizer. *g. phosphoric acid*. $\text{C}_3\text{H}_5(\text{OH})_2\text{H}_2\text{PO}_4 = 172.1$. An oily constituent of lecithins and nerve tissues. *g. sulfuric acid*. $\text{C}_3\text{H}_5(\text{OH})_2\cdot\text{HSO}_4$. *g. tributrylate*. Tributryrin.
- g. trilaurate*. Laurin. *g. trinitrate*. Nitroglycerin. *g. tripalmitate*. Palmitin. *g. tristearate*. Stearin.
- glycerophosphate. Lecithin. A salt of glycerol-phosphoric acid containing the radical $=\text{PO}_4-\text{C}_3\text{H}_5(\text{OH})_2$.
- glycerophosphoric acid. See *glycerolphosphoric acid*.
- glycerose. $\text{C}_6\text{H}_8\text{O}_3 = 90.1$. A triose mixture of glyceraldehyde and dioxyacetone, obtained by oxidation of glycerol.
- glycerosulfate. A salt of glycerolsulfuric acid containing the radical $-\text{SO}_2\text{C}_3\text{H}_5(\text{OH})_2$.
- glycerosulfuric acid. Glycerolsulfuric acid.
- glyceryl. Propenyl. The radical $-\text{CH}_2\cdot\text{CH}\cdot\text{CH}_2-$, from glycerol. Cf. *propenyl allyl*. *g. aldehyde*. Glyceraldehyde. *g. chloride*. Trichlorhydrin. *g. ether*. Glycerol ether. *g. hydroxide*. Glycerol. *g. laurate*. Trilaurin. *g. lineolate*. Trilinolein. *g. monostearate*. $\text{C}_{20}\text{H}_{41}\text{O}_4 = 346.32$. A commercial emulsifying and dispersing agent, used mainly in cosmetics. A hard fat, containing 30-40% of the α isomer, m.54-60, dispersible in water. *g. nitrate*. Nitroglycerin.
- glycide. Glycidol.
- glycidol. $\text{C}_3\text{H}_6\text{O}_2 = 74.05$. Glycide, epihydrin alcohol, 2,3-epoxy-1-propanol*. Colorless liquid, b.75.1mm162, miscible with water; used in organic synthesis.
- glycin. (1) Glycine. (2) *p*-Hydroxyphenylamino-acetic acid; a developer. (3) Mannite. (4) Beryllium. (5) Glycyrrhiza.
- glycine. $\text{NH}_2\cdot\text{CH}_2\cdot\text{COOH} = 75.09$. Glycocol, aminoacetic acid, aminoethanoic acid*, glyccin, gelatin sugar. Sweet, colorless monoclinic crystals, d.1.575, m.232, slightly soluble in water. acetyl-q.v. benzoyl- Hippuric acid. carbamyl- Hydantoic acid. glycy- The simplest peptide, $\text{NH}_2\cdot\text{CH}_2\cdot\text{CONHCH}_2\cdot\text{COOH}$. guanymethyl- Creatine. *N*-methyl- Sarcosine. α -methyl- Alanine. trimethyl- Betaine.
- g. anhydride*. 2,5-Piperazinedione. *g. betaine*. $\text{C}_5\text{H}_{11}\text{O}_2\text{N} = 117.08$; occurs in crustaceans, the cephalopods, and octopus.
- glycinin. The principal protein of the soybean.
- glycirriza. Glycyrrhiza.
- glycocholate. A salt of glycocholic acid.
- glycocholeic acid. $\text{C}_{27}\text{H}_{48}\text{O}_6\text{N} = 465.3$. A bile acid compound of glycogen and cholic acid. Colorless prisms, m.175, slightly soluble in hot water.
- glycocholic acid. $\text{C}_{26}\text{H}_{46}\text{O}_6\text{N} = 465.4$. A bile acid compound of glycine and cholic acid. Colorless needles, m.134, soluble in water.
- glycoclasic. Glycolytic.
- glycocol. Glycine. *g. betaine*. Glycine betaine.
- glycogen. $(\text{C}_6\text{H}_{10}\text{O}_5)_x$. Animal starch, glucogen, liver sugar, hepatin. A carbohydrate in the animal organism, especially liver. Colorless, tasteless powder, readily hydrolyzed to glucose (red with iodine). Acids hydrolyze it to dextrose, and enzymes to maltose.
- glycogenase. A liver enzyme which hydrolyzes glycogen to maltose and dextrin.
- glycogenolysis. The successive breaking down of glycogen in animal tissues. Cf. *staircase reaction*. In *normal* tissue, one glucose splits into lactic acid, and one is oxidized; in *cancer* tissue, 13 and 1, respectively.
- glycol. (1) See *glycols*. (2) $\text{CH}_2\text{OH}\cdot\text{CH}_2\text{OH} = 62.06$. Ethylene *g.*, 1,2-ethanediol, dihydroxyethane, monophenyl ether, phenoxetol. Colorless liquid, d.1.115, b.59mm198, miscible with water. An antifreeze (60% in water freezes at -49°C); a solvent for cellulose esters; and used to manufacture low-freezing dynamites. benzylene- Hydrobenzoin. butylene- Butanediol. diethylene- Carbitol. diphenyl- Hydrobenzoin. ethyldene- $\text{MeCH}(\text{OH})_2$. Known only in derivatives; as, acetals. mesitylene- Mesitylene *g.* phenyl- Cinnamic alcohol.

- pyrometer. *l.* wolframate. *L.* tungstate. *l.* yellow. *L.* chromate.
- Leadate. Trade name for dimethyl dithiocarbamate, a rubber accelerator.
- leadhillite. $\text{Pb}(\text{OH})_2 \cdot \text{PbSO}_4 \cdot 2\text{PbCO}_3$. A native sulfate of lead, from Leadhill, Scotland.
- leaf. (1) See *leaves*. (2) A thin metal sheet or foil; as, gold *l.*; used for ornamenting.
- lean. Deficient. Cf. *fat*. *l. clay*. A clay of poor plasticity. *l. coal*. A low gas-content coal. *l. ore*. A low metal-content ore.
- leather. A tanned skin. *mountain-* Paligorskite. *l. tankage*. A fertilizer made from *l.* scraps by digestion with steam, drying, and grinding.
- leatheroid. Vulcanized fiber.
- leaves. The stem appendages of a plant, containing chlorophyll and possessing respiratory openings. Some are used in pharmacy; e.g.: belladonna, eucalyptus, tobacco.
- LeBel, Jules Achille. 1847-1930. Alsatian capitalist who discovered the asymmetric carbon atom, (independently of van't Hoff) in 1874; and prepared the first optically active compound of asymmetric nitrogen.
- LeBlanc, Nicolas. 1742-1806. French chemist, and founder of the alkali industry. *L. soda process*. The manufacture of sodium carbonate by treatment of salt cake (Na_2SO_4) with carbon and limestone.
- lecanoric acid. $\text{C}_{14}\text{H}_{14}\text{O}_7 = 318.1$. Diorsellinic acid. Colorless crystals, decomp. by hot water to orsellinic acid. *l. monomethyl ether*. Evernic acid.
- LeChâtelier, Henry Louis. 1850-1936. French chemist, noted for the law of chemical equilibrium and work on metallurgy.
- lecithin. (1) Monoaminomonophosphatide. A group of substances of the general composition:



- FA is a fatty acid; R an alkyl radical. They are the esters of oleic, stearic, palmitic, or other fatty acids with glycerophosphoric acid and choline. Cf. *kephalin*. (2) $\text{C}_{44}\text{H}_{84}\text{NPO}_8 = 777.93$. Brown wax in animal and vegetable tissues and egg yolk, decomp. by heat, insoluble in water; a tonic and nutrient. animal-Contains P 3.9-4.0, N 1.8-2.0%. plant-Contains P 3.3-3.7, N 1.5-1.7%. *soya-* L. derived from soybean; equal parts of true *l.* and kephalin.
- Leclanché cell. A voltaic cell (1.46 volts); an anode of amalgamated zinc, and a cathode of carbon suspended in a solution of ammonium chloride, with manganese dioxide as a depolarizer.
- leditanic acid. $\text{C}_{14}\text{H}_{20}\text{O}_8 = 328.2$. A tannin from *Ledum* species (Ericaceae).
- ledixanthin. $\text{C}_{23}\text{H}_{34}\text{O}_{13} = 602.3$. A red coloring matter from *Ledum* species.
- Leduc effect. Thermomagnetic difference of temperature: the effect of a magnetic field on the distribution of heat.
- ledum camphor. A stearoptene from *Ledum palustre*, wild rosemary (Ericaceae). Cf. *Labrador tea*.

- lees. The albuminoid sediment of fermented liquids, e.g., wine.
- Leenwenhoek, Anton van. 1632-1723. A lens maker of Delft, Holland, who discovered bacteria microscopically (1675).
- legume. The pod of a leguminous plant.
- legumelin. An albumin from peas and beans.
- legumin. A globulin from leguminous plants. Cf. *avenin*.
- Leguminosae. Pulse family: a group of plants with edible seeds; some contain drugs. Roots: *Glycyrrhiza glabra*, Spanish licorice; barks: *Acacia mimosa*, mimosa bark; woods: *Haematoxylon campechianum*, logwood; leaves: *Cassia acutifolia*, senna; herbs: *Megicago sativa*, alfalfa; fruits: *Cassia fistula*, purging cassia; seeds: *Arachis hypogaea*, peanut; plant products: *Acacia senegal*, gum arabic.
- lehrbachite. HgPbSe . A mercury ore.
- Leibnitz, Gottfried Wilhelm Freiherr von. 1646-1716. German mathematician and philosopher.
- Leipzig yellow. Lead chromate pigment.
- leishmaniasis. Diseases due to protozoan infections, e.g., kala azar.
- lemco. A commercial meat extract, used to prepare beef broth media.
- Lémery, Nicolas. 1645-1715. French physician and chemist, noted for his chemical textbook.
- lemon. The ripe fruit of *Citrus limonum* (Rutaceae). Cf. *lime*. *l. balm*. Melissa. *l. chrome*. Barium chromate. *l. grass*. See *lemongrass*. *l. juice*. Lime juice. *l. oil*. Oleum limonis, oil of *l.* A fragrant, yellow oil, from fresh *l.* peel, d. 0.849-0.855, $[\alpha]_D^{20} + 57-65$, insoluble in water; a flavoring (U.S.P., B.P.). *l. peel* (U.S.P.), dried *l. peel* (B.P.). Cortex limonis. The outer rind of fresh ripe fruits of *Citrus medica*, lemon (Rutaceae); a tonic (U.S.P., B.P.) and flavoring. *l. yellow*. (1) Lead chromate. (2) Barium chromate.
- lemon balm. Melissa.
- lemongrass oil. Indian melissa oil. Yellow oil from *Cymbopogon* or *Andropogon citratus*, a grass of the E. Indies; d. 0.89, insoluble in water; a flavoring and perfume. It contains citral, geranial, and methyl heptenone. Cf. *citronella oil*, *melissa oil*.
- Lenard, Philipp. 1862-1947. German physicist. Nobel Prize winner (1905). *L. rays*. Long blue streamers produced when cathode rays penetrate thin sheets of aluminum or gold.
- length. The shortest distance between 2 points, measured in the cgs system by the meter, q.v., which was supposed to be one ten-millionth of the distance from the equator to the pole. Some magnitudes are given in the table. The smallest accurate determination of length is 0.000,03 mm (Fizeau's interference method). The largest accurate measurement of length (for the purpose of determining the velocity of light) is the distance between Mt. Wilson and Mt. San Antonio, Calif. = 35,426.3 meters.
- Lenigallol. Trade name for pyrogallol triacetate.
- lenirobin. Chrysarobin tetracetate. Yellow powder, used to treat skin diseases.
- lens. A piece of glass or other transparent material, with one or both faces curved, which converges, or diffuses light. The principal focus of a *l.* = $1/f_1 + 1/f_2$, where f_1 and f_2 are conjugate focal distances, or the distances of the object and of the image.